

RECEIVED

MAY 16 2012

OCCUPATIONAL SAFETY AND HEALTH
STANDARDS BOARD

Memorandum

To : Marley Hart, Executive Officer
Occupational Safety and Health Standards Board
2520 Venture Oaks Way, Suite 350
Sacramento, CA 95833

Date: May 14, 2012

From : Ellen Widess, Chief *EWidess*
Division of Occupational Safety and Health

Subject: Division Evaluation of Petition File No. 529
Don Austin, Basalite Concrete Products, LLC

This memorandum is written in response to the petition received by the Occupational Safety and Health Standards Board (Board) on March 16, 2012 regarding the application by Mr. Don Austin (Petitioner) to amend the General Industry Safety Orders, Appendix F, Determination and Application of Age Corrections to Audiograms, as referenced in Section 5097(d)(9). The petition and Board's request for the Division's evaluation were received on March 22, 2012.

T8 CCR 5097, *Hearing Conservation Program*, requires employers to make audiometric testing available to all employees whose exposures equal or exceed the action level of an 8-hour time-weighted average sound level (TWA) of 85 decibels measured on the A-scale (slow response) or, equivalently, a dose of fifty percent. Each employee's annual audiogram is compared to that employee's baseline audiogram to determine if the audiogram is valid and if a standard threshold shift (STS) has occurred.

Section 5097(d)(9) provides that, in determining whether a STS has occurred, allowance may be made for the contribution of aging (presbycusis) to the change in hearing level by correcting the annual audiogram according to the procedure described in Appendix F. The Petitioner proposes that the age correction values in Appendix F be updated and the values increased to age 75, although no extended age correction values or alternate age correction methods have been specified.

Labor Code Section 142.2 permits interested persons to propose new or revised standards concerning occupational safety and health, and requires the Board to consider such proposals, and render a decision no later than six months following receipt. Further, as required by Labor Code Section 147, any proposed occupational safety or health standard received by the Board from a source other than the Division must be referred to the Division for evaluation, and the Division has 60 days after receipt to submit a report on the proposal.

The Division has prepared this memorandum as an evaluation of the petition.

Actions Requested by the Petitioner

The Petitioner requests that age correction values in Table F of Article 105, Appendix F – *Determination and Application of Age Corrections to Audiograms*, 'be updated and the values increased to age 75' and states that '[t]o leave it as it is, is unfair to businesses who are required to accept OSHA recordable threshold

hearing shifts for older worker[s] because of an antiquated standard where correction values stop and does not reflect the current and future workforce.'

Existing Title 8 Regulations

Article 105 – Control of Noise Exposure, Sections 5095 through 5100, establishes requirements for controlling occupational exposures to noise. Paragraph 5097(d)(9) states that, 'In determining whether a standard threshold shift has occurred, allowance may be made for the contribution of aging (presbycusis) to the change in hearing level by correcting the annual audiogram according to the procedure described in Appendix F: Determination and Application of Age Correction to Audiograms.'

OSHA Regulations

The comparable federal regulation is Title 29 Code of Federal Regulations (29 CFR) section 1910.95 – Occupational Noise Exposure. It similarly states in paragraph 1910.95(g)(10)(ii) that 'In determining whether a standard threshold shift has occurred, allowance may be made for the contribution of aging (presbycusis) to the change in hearing level by correcting the annual audiogram according to the procedure described in Appendix F: "Calculation and Application of Age Correction to Audiograms."'

National Institute for Occupational Safety and Health [1988] Criteria for a Recommended Standard: Occupational Noise Exposure (NIOSH) Publication No. 98-126.

The age correction tables in 29 CFR 1910.95, Appendix F were developed by the National Institute for Occupational Safety and Health in the criteria document entitled 'Criteria for a Recommended Standard: Occupational Exposure to Noise' in 1972. Cal/OSHA subsequently adopted the same age correction values for its Article 105, Table F. The age corrections were based on a cross-sectional study and estimated by calculating trends as a function of the age of each member of the sample.

NIOSH has since updated that criteria document in 1998 and the current criteria document now states that 'Each age correction number is nothing more than a median value from a population distribution. In age-correcting an audiogram, the underlying assumption is that the individual value is given the 50th percentile, when in fact the 10th or 90th percentile may be the correct value. Thus age-correction formulas cannot be applied to determine with certainty how much of an individual's hearing loss is due to age and how much is due to noise exposure.'

OSHA Federal Register, Occupational Injury and Illness Recording and Reporting Requirements.

Final Rules 67:44037-44048, (2002, July 1) revised the criteria for recording hearing loss cases, including requiring the recording of Standard Threshold Shifts (10 dB shifts in hearing acuity) that have resulted in a total 25 dB level of hearing above audiometric zero, averaged over the frequencies at 2000, 3000, and 4000 Hz.

It distinguishes between detection of STS, in which age correction is allowed, and recordable hearing loss, which does not permit correction for age. "While the final rule allows the employer to age-correct the STS portion of the recording criteria, there is no allowance for age correction for determining a 25-dB hearing level. The AMA Guides specifically state that total hearing loss should not be age adjusted, and there is no recognized consensus method for age adjusting a single audiogram. *The method used in Appendix F of § 1910.95 is designed to age correct STS, not absolute hearing ability.* The 25-dB criterion is used to assure the existence of a serious illness, and reflects the employee's overall health condition, regardless of causation. Age correcting the STS will provide adequate safeguards against recording age corrected hearing loss."

American Academy of Audiology, Position Statement on Preventing Noise Induced Occupational Hearing Loss, October 2003

The American Academy of Audiology finds that the current OSHA method for identifying Standard Threshold Shifts (STS) does not constitute the best practice for identifying meaningful changes in hearing and cites that 'age correction of individual audiograms before checking for threshold shifts is counterproductive to detecting temporary changes in hearing before they become permanent (Merry and Franks, 1995)... and that "Many professionals feel that if intervention for threshold shifts is delayed until after age-corrected STS has occurred, then significant hearing changes will not receive needed follow-up attention" (NHCA, 2001).'

Theresa Schulz, "The Emperor has no clothes "Age Correction of Audiograms, Spectrum newsletter of the National Hearing Conservation Association (NHCA), Volume 23 Number 2, 2006

Theresa Schulz, Ph.D. is currently president of the NHCA Foundation, past chair of the Council for Accreditation in Occupational Hearing Conservation, a certified member of the American Speech-Language-Hearing Association, a fellow in the American Academy of Audiology, and a member of the Air Force Audiology Association. Ms. Schulz discusses various reasons to not age-correct individual audiograms. She reasons that using the median or average value for a group of individuals will over age-correct for some and under age-correct for others and be just right for some people. She also points out that the original NIOSH data did not include people over 60 years old; and that the NIOSH tables are based on 380 non-noise exposed and 792 noise-exposed employee hearing tests done from 1968 to 1971 in the "steelmaking, paper bag processing, aluminum processing, quarrying, printing, tunnel police, wood working, and trucking" industries and that these workers may not be representative of today's noise-exposed worker.

Discussion

Article 105, Section 5097 is currently at least as effective as OSHA's noise standard, 29 CFR 1910.95. Its age correction values are identical to those of federal OSHA. Age correction of annual audiograms in determining whether a STS has occurred to allow for hearing loss due to aging is permissible, but not mandated by either Cal/OSHA or federal OSHA.

It is important to distinguish between an STS and a recordable hearing loss. Cal/OSHA's hearing conservation program requirements are aimed at preventing occupational hearing loss and the early identification of an STS to intervene before it becomes recordable. If an employee's audiogram reveals that the employee has experienced a work-related STS in hearing in one or both ears, and the employee's total hearing level is 25 decibels (dB) or more above audiometric zero (averaged at 2000, 3000, and 4000 Hz) in the same ear(s) as the STS, then the case must be recorded on the Cal/OSHA Form 300.

DOSH staff's recent communication with NIOSH reveals that they currently advise against using the existing table because it has aggregate data that is not statistically supportable, and that they are making a substantial effort to revise the table based on National Health and Nutrition Examination Survey (NHANES) data.

If Article 105, Table F is extended so that age correction values are increased, the time required for a significant threshold shift to be noted will be further prolonged and would render Section 5097 less protective than 29 CFR 1910.95 and therefore not considered as effective as the OSHA regulation.

Conclusion

The petition to increase the upper age correction values in Article 105, Table F, is problematic for several reasons. There is no recognized consensus method for age correcting individual audiograms and NIOSH and the American Academy of Audiology recommend against using the OSHA methods with the existing tables. The petition does not propose any revised age correction values or age correction methods. Lastly, extending the table by increasing age correction values would further prolong the time required for a significant threshold shift to be noted, and would render Cal/OSHA's noise standard to be less effective than the equivalent federal standard. Consequently, the Division recommends that the petition be denied.

cc: Grace Delizo
Steve Smith
Deborah Gold
Suzanne Marria